REMARKS

Claims 1-13 and 17-20 are pending in this RCE application. Claims 1 and 20, are amended herein.

Claims 1, 11, 13, and 17 are independent.

The Examiner has previously rejected claims 1, 3-5, 7, and 17-20 under 35 USC §102(a) as being anticipated by Guliants et al. (Photovoltaic Specialists Conference, 15-22 September 2000, IEEE, pages 154-157), claim 2 under 35 USC §103(a) as being obvious over Guliants et al, and claims 6 and 8-13 under 35 USC §103(a) as being obvious over Guliants et al in view of Okamoto et al. (U.S. Patent No. 6,337,224). These rejections have been traversed in the Request For Reconsideration filed in association with the Request For Continued Examination of October 6, 2003. The traversal arguments of October 6, 2003 are incorporated herein in their entirety.

As described on page 13, line 22, through page 14, line 2, and as shown in Figures 1 and 2, of the subject application, a first polycrystalline silicon layer (3A) is formed by a metal catalyst element layer (4) being diffused into an amorphous silicon layer (3) formed on a conductive substrate or conductive layer. The metal catalyst element diffuses through the amorphous silicon layer (2) such that only a trace amount of the metal catalyst element is left within the amorphous silicon layer (2). In other words, the metal catalyst element migrates away from the metal catalyst element layer (4) toward the outermost surface of the first polycrystalline silicon layer (3A), i.e. toward the conductive substrate or conductive layer. Because the polycrystalline silicon layer (3A) does not have a substantial amount of the metal

catalyst element therein, another high-quality polycrystalline silicon layer may be formed on the first high-quality polycrystalline silicon layer.

The Guliants reference does not teach such a first polycrystalline silicon layer. Rather, as Guliants describes at page 156, right-bottom paragraph, an n-type Si layer is formed on a Ni prelayer formed on a Mo substrate. The Ni is a metal catalyst element. In Guliants, the Ni diffuses through and migrates to the surface of the n-type Si layer, i.e., away from the Mo substrate.

The Ni does not diffuse to the substrate because, as described on page 156, top-left paragraph, lines 8-11, a SiO2 buffer layer disposed between the Mo substrate and the Ni prelayer serves to eliminate Ni diffusion in that direction. It is common knowledge to one of skill in the art that during the process of deposition and heat treatment the Ni metal catalyst element will diffuse and migrate to the surface of the n-type Si layer because the Ni will diffuse from a high Ni concentration region, the Ni prelayer, to a low Ni concentration region, the n-type Si layer. The diffusion continues until the Ni reaches the end of the n-type Si layer, i.e., the top surface of the n-type Si layer.

As a result of the diffusion, a substantial amount of Ni moves to the top surface of the n-type Si layer. A p-type Si layer is formed at the top surface of the n-type Si layer. The Ni at the top surface of the n-type Si layer interferes with the formation of the p-type Si layer, resulting in the p-type layer failing to have a high crystalline quality, as compared to the second polycrystalline silicon layer of the present invention.

To expedite allowance, independent claim 1, as well as dependent claim 20, have been amended to recite a first polycrystalline silicon layer having only a trace

amount of metal catalyst element therein and a substantial amount of metal catalyst element disposed on a surface of the first polycrystalline silicon layer closest to a conductive substrate or layer upon which the first polycrystalline silicon layer is formed. Additionally, claim 1 has been amended to recite that the second polycrystalline silicon layer is formed on the first polycrystalline silicon layer. As should be understood from the discussion above, neither Guliants, nor a combination of Guliants and Okamoto, teach or suggest inventions recited in claims 1 and 20.

Also, as should be understood from the Request for Reconsideration of October 6, 2003, independent claims 11, 13, and 17 each recite inventions neither taught nor suggested by Guliants or a combination of Guliants and Okamoto. For example, claims 11 and 13 each recite that the second polycrystalline layer has been formed without catalytic affect. Thus, structurally, the p-n junction or p-n junction forming layer (generating layer) does not include Ni, in accordance with the invention recited claims 11 and 13.

In contrast, Guliants discloses the formation of the solar cell generating layer by metal induced growth (MIG). Accordingly, Guliants' structure must necessarily have a p-n junction or p-n junction forming layer (generating layer) which includes Ni (see page 156, right column, and page 157, left column). Furthermore, Okamota et al. is not cited for and does not cure the deficiency in Guliants' structure.

Independent claim 17 recites a second polycrystalline silicon layer which is formed using the first polycrystalline silicon layer as a seed crystal. This likewise limits the p-n junction or p-n junction forming layer (generating layer) of the recited structure to one which does not include Ni. Thus, claim 17 is also distinguishable over the applied prior art.

In further reference to the Request for Reconsideration of October 6, 2003, limitations recited in the dependent claims of the subject application further clarify the differences in the structures of the present invention and the applied art.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed local telephone number, in order to expedite resolution of any remaining issues and further to expedite passage of the application to issue, if any further comments, questions or suggestions arise in connection with the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to deposit account 01-2135 (521.41463X00) and please credit any excess fees to such deposit account.

Respectfully submitted,

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